JOURNAL OF
Colloid and Interface Science

EDITORS-IN-CHIEF

Milton Kerker
Clarkson College of Technology
Potsdam, New York

A. C. Zettlemoyer
Lehigh University
Bethlehem, Pennsylvania

ADVISORY BOARD

G. T. Barnes
St. Lucia, Australia

J. H. Fendler
Potsdam, New York

S. Friberg
Rolla, Missouri

H. L. Frisch
Albany, New York

H. K. Herglotz
Wilmington, Delaware

C. Huh
Houston, Texas

R. J. Hunter
Sydney, Australia

K. Klier
Bethlehem, Pennsylvania

M. Muramatsu
Sagamihara
Kanagawa-Ken, Japan

P. Plummer
Rolla, Missouri

D. C. Prieve
Pittsburgh, Pennsylvania

J. Rouquerol
Marseilles, France

E. Ruckenstein
Buffalo, New York

A. Silberberg
Rehovot, Israel

P. Stenius
Stockholm, Sweden

T. Van de Ven
Montreal, Canada

B. Vincent
Bristol, England

J. Wightman
Blacksburg, Virginia

Victor K. La Mer, Founding Editor
1895–1966

Volume 85

1982

ACADEMIC PRESS
A Subsidiary of Harcourt Brace Jovanovich, Publishers
New York London Toronto Sydney San Francisco

Copyright © 1982 by Academic Press, Inc.
All rights reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (21 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1982 articles are the same as those shown for current articles.

MADE IN THE UNITED STATES OF AMERICA

Contents of Volume 85

NUMBER 1, JANUARY 1982

Dedicated to the Memory of Professor Frank Chauncey Goodrich

EDITORIAL 1

OBITUARY 2

A. STEINCHEN, D. GALLEZ, AND A. SANFELD. A Viscoelastic Approach to the Hydrodynamic Stability of Membranes 5

GEORGE L. GAINES, JR. The Thermodynamic Equation of State for Insoluble Monolayers. III Mixed Monolayers 16

E. D. GODDARD, G. H. MATTESON, AND G. E. TOTTEN. Counterion Effects in a Cationic Monolayer 19

NORMAN L. GERSHFELD. The Liquid Condensed/Liquid Expanded Transition in Lipid Films: A Critical Analysis of the Film Balance Experiment 28

B. A. PETHICA AND D. G. HALL. Electric Field Effects on Membranes 41

J. LUCASSEN. Effect of Surface-Active Material on the Damping of Gravity Waves: A Reappraisal 52

S. P. LIN AND HOWARD BRENNER. Marangoni Convection in a Tear Film 59

K. JAYARAJ, ROBERT COLE, AND R. SHANKAR SUBRAMANIAN. Combined Thermocapillary and Buoyant Flow in a Drop in a Space Laboratory 66

R. BUSCALL, J. W. GOODWIN, R. H. OTTEWILL, AND TH. F. TADROS. The Settling of Particles through Newtonian and Non-Newtonian Media 78

C. M. CERDA, R. T. FOISTER, AND S. G. MASON. Rheooptical Transients in Sheared Suspensions. III. Effects of Brownian Motion on Oblate Spheroids 87

LOREN H. DILL AND HOWARD BRENNER. A General Theory of Taylor Dispersion Phenomena. III. Surface Transport 101

DORIS BAUMER AND GERHARD H. FINDENEGG. Adsorption of Hydrophobic Vapors on the Surface of Water 118

ROBERT J. GOOD. Thermodynamics of Adsorption and Gibbsian Distance Parameters. II. The Pressure Coefficient of Interfacial Tension in Ternary Two- and Three-Phase Systems 128

ROBERT J. GOOD. Thermodynamics of Adsorption and Gibbsian Distance Parameters. III. Interfacial Distances and the Surface Excess Volume 141

JAMES C. MELROSE AND WILLIAM H. WADE. Thermodynamics of Displacement Wetting .. 147

A. I. RUSANOV. Thermodynamics of Micelles 157

D. R. ABSOLOM, D. W. FRANCIS, W. ZINGG, C. J. VAN OSS, AND A. W. NEUMANN. Phagocytosis of Bacteria by Platelets: Surface Thermodynamics 168

E. H. LUCASSEN-REYNDERS. Surface Interactions in Mixed Surfactant Systems 178

L. M. BALDAUF, R. S. SCHECHTER, W. H. WADE, AND ALAIN GRACIAA. The Relationship between Surfactant Phase Behavior and the Creaming and Coalescence of Macroemulsions 187

HANS-FRIEDRICH EICKE AND ZORA MARKOVIC. Electrical Birefringence Relaxation in Water/Aerosol OT/Isooctane Thermodynamically Stable Emulsions 198

R. C. FAIREY AND B. R. JENNINGS. Electrooptical Study of the Effect of Surfactant on Attapulgite Clay Sol Stability 205

SRINIVASAN VENKATESH, M. MEYYAPPAN, AND DER-TAU CHIN. Mathematical Modeling of Alternating Current Modulation of a Copper Rotating Disk Electrode in an Acid Sulfate Solution 216

M. SHAHINPOOR. A Model for Crystallization of Monomolecular Layers on Contracting Surfaces 227

INAM JAWED AND JAN SKALNY. Surface Phenomena during Tricalcium Silicate Hydration 235

A. C. Miller, A. W. Czanderna, H. H. G. Jellinek, and H. Kachi. Ion Scattering Profiles of Polypropylene Coatings on $Cu^{18}O_{0.67}$ Films before and after Oxidative Degradation of the Polymer 244

S. Musić, A. Vértes, G. W. Simmons, I. Czakó-Nagy, and H. Leidheiser, Jr. Mössbauer Spectroscopic Study of the Formation of Fe(III) Oxyhydroxides and Oxides by Hydrolysis of Aqueous Fe(III) Salt Solutions 256

Joseph L. Katz and Marc D. Donohue. Nucleation with Simultaneous Chemical Reaction 267

Periasamy Ravindran and E. James Davis. Multicomponent Evaporation of Single Aerosol Droplets 278

W. Szymanski, F. G. Pohl, and P. E. Wagner. Observation of Resonances for Elastic Light Scattering by Spherical Particles 289

M. Kerker and D.-S. Wang. Anisotropic Photoelectron Emission from Small Particles ... 302

Nikola B. Milić and Egon Matijević. Formation of Spherical Colloidal Thorium Basic Sulfate Particles 306

Number 2, February 1982

Dedicated to the Memory of Professor Frank Chauncey Goodrich

Editorial Note 317

H. Narayanan, G. R. Youngquist, and J. Estrin. Nonuniform Solution Growth of Potassium Aluminum Sulfate 319

Varanasi Sasidhar and Eli Ruckenstein. Anomalous Effects during Electrolyte Osmosis across Charged Porous Membranes 332

C. I. Christov, L. Ting, and D. T. Wasan. The Apparent Dilational Viscoelastic Properties of Fluid Interfaces. IV. Determination of Surface Compositional Elasticity and Sorption Parameters 363

Lisbeth Ter-Minassian-Saraga and Georgette Madelmont. Differential Scanning Calorimetry Studies of Hydration Forces with Phospholipid Multilamellar Systems 375

Maher E. Tadros and Lauri Vaska. *para*-Hydrogen Conversion and Hydrogen–Deuterium Equilibration Catalyzed by Diamagnetic Iridium, Platinum, and Ruthenium Complexes in Nonaqueous Solution (1) 389

Regular Articles

Kuo Chuan Ho and Jer Ru Maa. Surface Diffusion and Heterogeneous Nucleation on Solid Substrates 413

B. Z. Ginzburg. The Binding Enthalpy of Water to Bovine Serum Albumin 422

J. P. Cordiez, G. Grange, and B. Mutaftschiev. Droplet Freezing Experiments in Stearic Acid–Water Emulsions Role of the Droplet–Medium Interface 431

Ingvar Danielsson, Rauno Friman, and Johan Sjöblom. Equilibria and Structures of Microemulsions and Liquid Crystals in Water–Surfactant–Oil Systems 442

M. A. Rahman, S. K. Basu, A. Roychoudhury, and A. K. Ghosh. Comparison of Methods of Determination of Specific Surface Area Using Samples of Cupric Oxide, Ferric Oxide, and Alumina Powders 452

M. Bülow, H. J. Wappler, M. Jaroniec, and J. Piotrowska. Adsorption of Gas Mixtures on Solids. Analysis of Experimental Data Measured at Constant Mole Fractions of Components in the Adsorption Space 457

J. F. Scamehorn, R. S. Schechter, and W. H. Wade. Adsorption of Surfactants on Mineral Oxide Surfaces from Aqueous Solutions. I. Isomerically Pure Anionic Surfactants 463

J. F. Scamehorn, R. S. Schechter, and W. H. Wade. Adsorption of Surfactants on Mineral Oxide Surfaces from Aqueous Solutions. II. Binary Mixtures of Anionic Surfactants .. 479

J. F. Scamehorn, R. S. Schechter, and W. H. Wade. Adsorption of Surfactants on Mineral Oxide Surfaces from Aqueous Solutions. III. Binary Mixtures of Anionic and Nonionic Surfactants 494

V. Bosáček, D. Freude, T. Fröhlich, H. Pfeifer, and H. Schmiedel. NMR Studies of ^{27}Al in Decationated Y Zeolites 502

D. G. Ravenhall, L. J. Forney, and A. L. Hubbard. Theory and Observation of a Two-Dimensional Virtual Impactor 508

Richard L. Beissinger and Edward F. Leonard. Sorption Kinetics of Binary Protein Solutions: General Approach to Multicomponent Systems 521

Kazuo Tajima, Hiroshi Murata, and Takao Tsutsui. Direct Measurement of Adsorbed Amount of Sodium Tetradecyl-2,3-^{3}H, ^{3}H-sulfate at the Oil–Water Interface by Radiotracer Method 534

M. Borówko. Adsorption from Multicomponent Solutions on Homogeneous Solid Surfaces 540

Glenn O. Rubel. Evaporation of Single Aerosol Binary Oil Droplets 549

Abraham Marmur. Moving-Boundary Electrophoresis: Theory and Interpretation of "Anomalies" 556

J. L. Das Kanungo and G. N. Sarkar. Equilibrium Exchange Selectivity of Alkaline Earth, Quaternary Ammonium, and Alkane Diammonium Ions in the Release of $Co(pn)_3^{3+}$ from H–$Co(pn)_3$–Bentonite 566

Michel Vandevyver, André Barraud, Raudel-Teixier, Philippe Maillard, and Charles Gianotti. Structure of Porphyrin Multilayers Obtained by the Langmuir Blodgett Technique 571

Janina Rodakiewicz-Nowak. Equimolar Surface Films of Cationic and Anionic Surfactant Solutions 586

Notes

M. Patel and V. Ramakrishna. Adsorption of Benzene–Dioxane Solutions on Precipitated Chromium Oxides before and after Sintering 592

Vladimir Nunez-Tolin, Hubert Hoebregs, José Léonis, and Sergio Paredes. Surface Tension Measurements by the Drop-Weight Method for Continuously Varying Surfactant Concentration 597

Tiren Gu. The Application of the Modified BET Equation to Multimolecular Adsorption from Solution 601

Errata

Volume 81, Number 2, June 1981: J. T. A. M. Welzen, H. N. Stein, J. M. Stevels, and C. A. M. Siskens, "The Influence of Surface-Active Agents on Kaolinite," pp. 455–467 604

Volume 82, Number 2, August 1981: Tiren Gu, "BET-Type Equations for Adsorption of Mixed Vapors of Immiscible Liquids," pp. 584–585 604

Announcement 605

Author Index for Volume 85 606

The Subject Index for Volume 85 will appear in the December 1982 issue as part of a cumulative index for the year 1982.